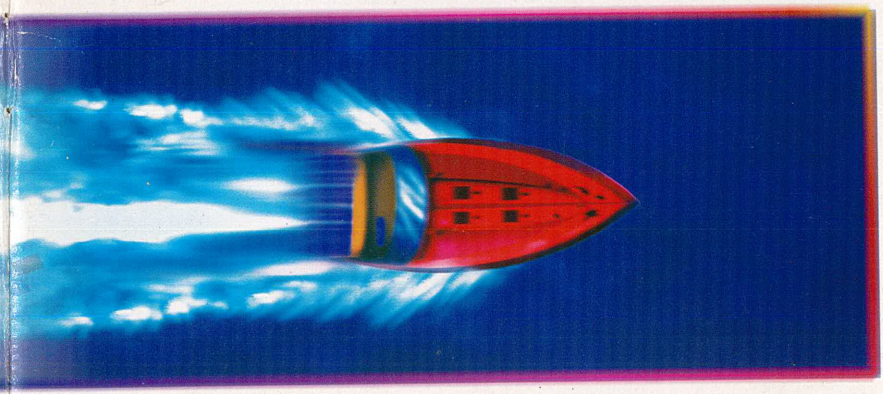
SIDE®-2930U

PCI Bus Master SCSI adapter



Operation Manual

PCI Bus Master

Ultra SCSI Host Adapter

Plug and Play

PREFACE

Congratulation on purchasing this highest performance PCI-Bus Ultra SCSI-2 host adapter that currently market available.

From this manual, we will describe about how automated in installation this adapter. Installation will go without a hitch, and your system will be up and running in no time. Follow the procedure that list at below, this will guide you to Install your hardware, then configure the hardware for your system, then install the required software.

You will have completed this host adapter setup, after taking the following steps:

1) Mounting and configuring this host adapter for your system.
2) Installing this adapter software files on your hard disk

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CHAPTER 1

Quick Installation

The installation of this PCI Bus Host adapter is fully plug and play compatible. The configuration of the board is controlled by the SCSI BIOS automatically. Simply follow the Instructions below to install and configure the software required to successfully complete the process. More complete instructions are covered in Chapter 3 and 4 on the installation of this SIDE-2930U adapter.

Step1. **Make a backup copy of your Installation/ Boot diskette.**
If your computer is new,make this backup copy once the system is operation.

***Special Note**: Replacing or Adding to Existing SCSI Boards. If the SIDE-2930U will replace an existing SCSI host adapter,remove that board first, as well as any software device drivers for that board. If you are simply adding the SIDE-2930U to a system with existing SCSI or IDE controllers,there is no need to change existing boards or software.*

Step2. **Turn your computer power off.**

Step3. **Install this SIDE-2930U host adapter board in a PCI bus slot on the motherboard.**

Step4. **Connect all SCSI devices you want to use:**
For external devices, leave the power off. Make sure all signal and power cables are properly connected. Although SIDE-2930U will automatically set Termination correctly on the host adapter, you must ensure all other SCSI devices are terminated correctly. Only the last device on both the internal and/or external SCSI Bus should be terminated(Resistor pack terminator should be put-on). All other SCSI devices should not be terminated (Resistor pack terminator should be take-off). Follow the directions as specified by the SCSI device user manual.

Step5. **Insert the Installation Diskette in Drive A.**

Step6. **Turn on the PC's power.**
After the system boots,the program will present a " Welcome"

screen.

Special Note: *If your computer boots from a hard drive,run your BIOS Setup Program and temporarily change the boot disk to A: Remember to run the BIOS Setup program again after installing the SIDE-2930U to reset your original boot drive.*

Step7. **Turn on the power to your external SCSI devices.**

Step8. **Press the Spacebar to continue installation.**
If you have a monochrome monitor, press F9.

Step9. **Press the Spacebar to perform diagnostics.**
A complete test of the SIDE-2930U host adapter and the SCSI subsystem will be completed within a few moments.

Step10. **Select "Yes" and press Enter when progrm wants to Examine the SCSI Bus and Listed Devices.**
Let program perform its examination and show you a list of devices.

Step11. **Select "Yes" if all your connected devices appear on the list.**
If they don't select "No" and the program will provide troubleshooting tips and ask you to reboot.

Congratulations ! you have completed the hardware installation.

Step12. **Load system software for your specific operating system.**
See Chapter 5:Software Installation Notes. That's all there is to it !

CHAPTER 2

Overview

This chapter provides a brief introduction, plus more detail on this PCI Bus Master Host Adapter.

This SIDE-2930U is a high performance PCI Bus Master Host Adapter, providing a highly integrated solution for attaching SCSI devices to your IBM Personal Computer or compatible.

Mainframe Performance For The PC

The speed of today high-performance PC's is limited only by the system I/O.The SIDE-2930U solve this problem. This adapter take their design architecture straight from mainframe computers to optimize multi-tasking, ulti-threaded operations. At the core of the architecture is a decicated high-performance RISC processor.The processor of this adapter specifically to guarantee maximum throughput for system I/O. The architecture uses local memory, instead of the old industry standby mailbox technology, to keep all CPU I/O request active at the same time. And the industry best scatter/gather technology also speed the retrieval and transferal of fragmented files dramatically. The local memory holds all the information needed to support scatter/gather lists without burdening the CPU system bus.This remarkable new architecture allows transfe in burst mode up to 133 Mbytes/sec. It performance is unchallenged in the industry. You cannot buy a faster I/O system for your PC.

Easiest SCSI Installation

Installing the host adapter is a snap. There are no jumpers or switches to set.Forget about having to know PC technical settings, such as BIOS address, port address and interrupt. Configuration for all SCSI hardware connected to this adapter is operating system independent. The bootable Configuration Software handles everything.

Installation of all the drivers and utilities is a simple one-step process.This utility helps locate any problems in the I/O subsystem, host adapter, SCSIcable, or SCSI peripherals. When you add new peripherals to the system, simply run the configuration utility in BIOS.

Compatibility Ensured

The compatibility of this SIDE-2930U PCI Bus Master has been established by extensive testing with all types of host systems, operating systems, and SCSI peripherals.

The Kit includes support for the following Operating Systems:

a) MS-DOS 4.0 or higher
b) Windows 3.1
c) Windows NT 3.51
d) Netware 3.12/4.02
e) OS/2 2.1
f) SCO UNIX 4.2 or higher
g) Interactive UNIX 3.2 or higher
h) Windows 95

2.1 Hardware Festures

PCI-Bus Interface

- ☑ Fully compliant with the PCI Local Bus Specification Revision 2
- ☑ 32-bit Bus Master DMA, allowing data transfer rate up to 132Mbytes/sec across the PCI-Bus
- ☑ Scatter-and-gather function supported
- ☑ "+5 Volt" only PCI board

SCSI Bus Interface

- ☑ 8-bit ULTRA SCSI-2, 20 Mbytes/sec synchronous data transfer rate across the SCSI Bus
- ☑ Single-ended SCSI interface,provided through a 50-pin internal SCSI connector and a 50-pin high density external SCSI connector.
- ☑ SCSI-1 and SCSI-2 peripheral devices mix possible.
- ☑ Tagged Queuing supported for SCSI-2.
- ☑ Supports up to 7 peripheral devices per adapter board.
- ☑ Supports a wide range of SCSI peripheral devices; hard disk drives,CD-ROM drives,tape backup units,printers,scanners.
- ☑ SIDE-2930U advanced Ultra SCSI processor.
- ☑ Built-in RISC microprocessor executed multiple requests concurrently. All requests are stored in RAM local to ASC3150. ASC3150 sends the requests to the SCSI peripheral devices, and performs complete SCSI handshakes without host system CPU intervention.Providing the I/O power to support the needs of multi-tasking / multi-user operating systems such as OS/2, Unix,Window NT, and Novell NetWare.
- ☑ Host system has direct access to the local RAM, allowing the host

CPU to post SCSI I/O requests efficiently

- ☑ Host-accessible internal registers and single-step RISC instruction execution, allowing an efficient diagnostic capability

Unique Features of SIDE-2930U

- ☑ EEPROM read-and-write configuration facilitates a jumperless host adapter.
- ☑ Selection of SCSI bus characteristics can be done easily with the SIDE-2935 control a BIOS utility
- ☑ Automatic Active Termination control. The user never needs to worry about termination of the host adapter
- ☑ Watchdog timer, prevents system hang due to malfunctioning SCSI peripheral devices
- ☑ Complete software support Corel SCSI Version 2 driver / utility support hard drives, CD-ROM drives, CD-ROM writers, WORM drives, removable drives, multifunction drives, QIC tape drives, rewritable drives, Floptical drives, printers, scanners, 8mm tape drives, and DAT drives. Also included are DOS, Windows and OS/2 utilities for: Photo CD, Audio CD, CD-ROM writer, scanners, backup software-tape and any logical device, diagnostic tools.

2.2 Technical Specifications

Computer Bus:

- ☑ PCI-Bus

Interface Protocol:

- ☑ Bus Master DMA

Device Protocol:

- ☑ SCSI-2

Device support

- ☑ Up to 7 SCSI devices

SCSI Features:

- ☑ Multi-tasking, multi-threaded I/O, scatter / gather, tagged queuing, disconnect /reconnect, synchronous and asynchronous data transfer, Advanced SCSI Programming Interface (ASPI) compliant.

Bus Width:

- ☑ 32-bit

Host Bus Data Transfer Rate:

- ☑ Up to 132 Mbytes/sec (burst mode)

- ☑ 10Mbytes/sec synchronous burst on the SCSI bus (Ultra SCSI)
- ☑ 20Mbytes/sec synchronous burst on the SCSI bus (Ultra SCSI)
- ☑ 5Mbytes/sec synchronous burst on the SCSI bus
- ☑ 3Mbytes/sec asynchronous on the SCSI bus

Electrical Terminations:

- ☑ Single-ended

I/O Operating System Support:

- ☑ DOS (version 4.0 and higher)
- ☑ Windows (version 3.51 and higher)
- ☑ Windows NT (version 3.51 and higher)
- ☑ Novell Netware (version 3.11,4.01 and higher)
- ☑ OS/2 (version 2.1 and higher)
- ☑ SCO UNIX (version 4.2 and higher)
- ☑ Interactive UNIX (version 3.2 and higher)

I/O Hardware:

- ☑ Internal 50-pin low density and external 50-pin, high density SCSI Connectors

Operating Temperature:

- ☑ 0℃ (32℉) to 55℃ (131℉)

Storage Temperature:

- ☑ -40℃ (-40 ℉) to 75 ℃ (167℉)

Relative Humidity:

- ☑ 10% to 95% non-condensing.

CHAPTER 3

Hardware Installation

The SIDE-2930U Hardware Installation Guide provides an in-depth description of the installation procedure for your personal computer (PC)

3.1 Pre-Installation Check-Out

Checklist for your SIDE-2930U Host Adapter Kit

Before you install and configure SIDE-2930U, make sure that you have all the following in your SIDE-2930U package.

1. SIDE-2930U PCI Bus Master Host Adapter Board
2. This Operation Manual
3. Software 3.5" diskette drivers
4. Internal 50-pin SCSI ribbon cable

The minimum hardware and software requirements are:

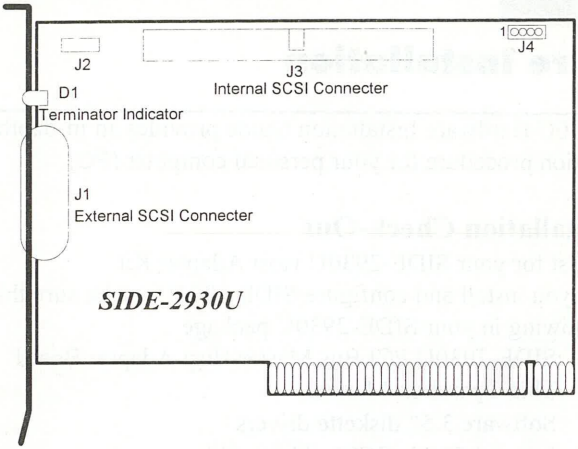
- ☑ An IBM Personal Computer or compatible
- ☑ A 3.5" floppy disk drive, and a hard disk drive
- ☑ One or more SCSI peripheral devices (up to a total of 7 per adapter board)
- ☑ A minimum of 640K bytes of RAM
- ☑ A minimum of 2 megabytes of free disk space for a basic installation
- ☑ A minimum of 10 megabytes of free disk space for a full installation
- ☑ A Phillips screwdriver to open up the chassis.

3.2 Installation Overview

It is not necessary for you to understand the PC computer terms to install your high performance SCSI host adapter. The next sections will walk you through the hardware tasks of physically installing the host adapter and the I/O devices. In the next chapter you will be walked through the tasks to customize the setup of the host adapter. The SIDE-2930U will be automatically tested with the Boot Diskette.

SIDE-2930U Connectors

Connectors Functions



J1 50-pin External high-density SCSI Connector
J2 SCSI terminators Control.
J3 50-pin Internal SCSI Connector
J4 LED Connector
Pin 1 & 4: POWER, Pin 2 & 3: SCSI Bus Busy Signal (Active Low)
D1 SCSI Terminator Indicator LED
Light on when external SCSI device was(were) connected.

3.3 Installing the SIDE-2930U host adapter board

1. Connecting the SIDE-2930U.
2. Power off your PC(Personal Computer) and unplug the power cord.
3. Open up your PC chassis.
4. Touch the power supply of your PC to discharge any static electricity.
5. Find an available PCI-Bus slot, and plug SIDE-2930U Host Adapter Board in, making sure that it has been seated properly and firmly into the slot. Secure the board by screwing on the mounting screw.
6. Install any internal and external SCSI peripheral devices as instructed by their installation manuals. A maximum of 7 SCSI peripheral devices can be installed per SIDE-2930U host adapter.

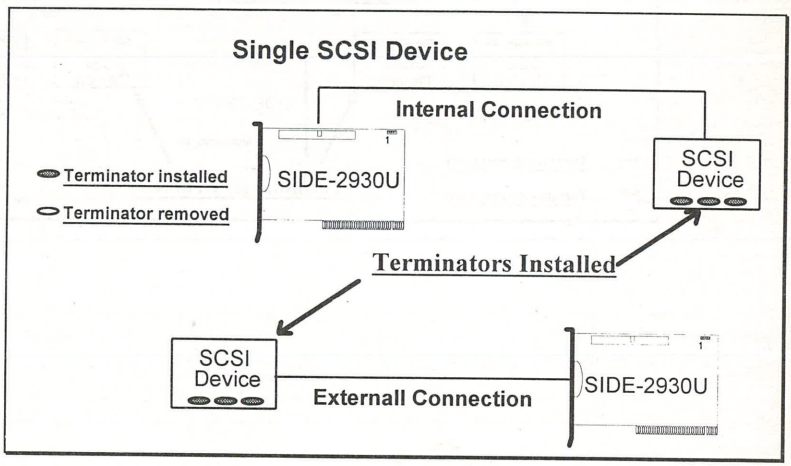
NOTE:The SCSI bus requires a special condition know asterminations to accurately send signals across the bus. This host adapter has an automatic termination control for the host adapter end of the cable. Since SIDE-2930U can not control the other end of the SCSI bus, you must ensure that the termination at the other end (the peripheral device end) of the cable is correctly set.

7.Enable the Termination on only the last SCSI device on an internal and/or external SCSI cable. Figures below willdemonstrate this point.

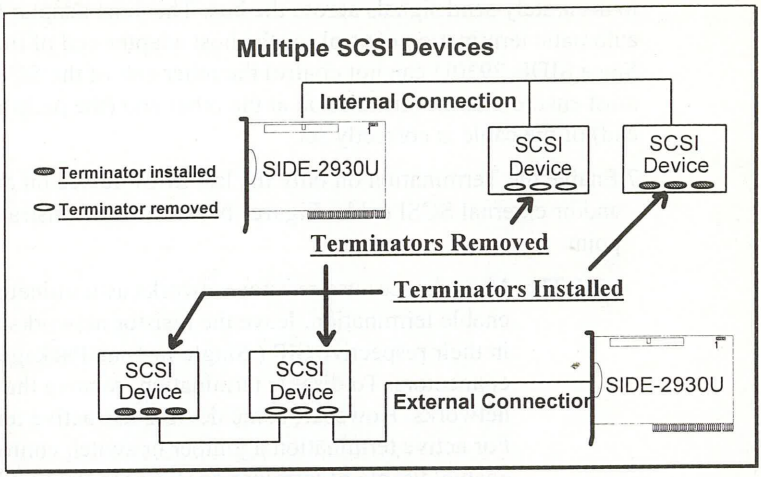
NOTE: Most devices use resistor networks as terminators. To enable termination, leave the resistor networks installed in their respective SIP (Single In-Line Package) connectors. To disable termination, remove these resistor networks. However, some devices use active termination. For active termination a jumper or switch controls the enable/disable of termination. Refer to the SCSI device installation manual for more details on this.

3.4 Exparation of SCSI Termination

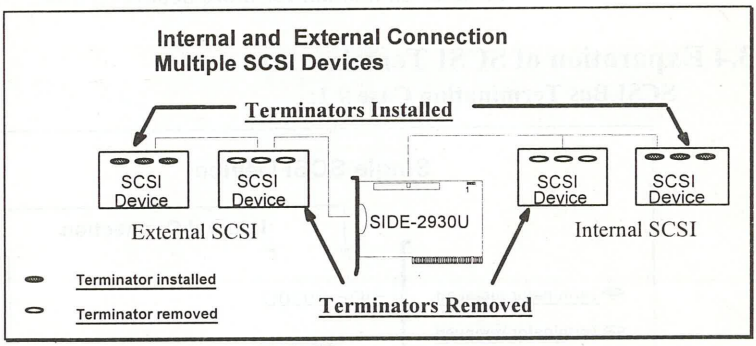
SCSI Bus Termination Case # 1:



SCSI Bus Termination Case # 2:

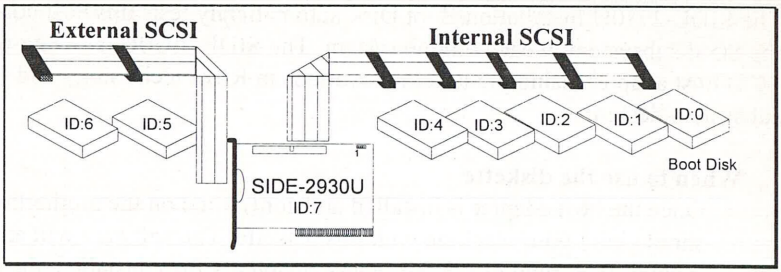


SCSI Bus Termination Case # 3:



3.5 Assign the SCSI devices Ids

For example, there are a total of 5 internal and 2 external SCSI peripheral devices attaching to the SIDE-2930U. Notice that each device on the SCSI Bus has a unique SCSI ID. You can assign the SCSI IDs randomly on the SCSI Bus, as long as there is no conflict! The SIDE-2930U manufacture default is ID7.



1. Connect one end of the Internal 50-pin flat SCSI ribbon cable (provided together with this package) to connector J3 of the SIDE-2930U and the other end to any internal SCSI peripheral devices installed. Take note to install the ribbon cable correctly. Connect the colored side of the ribbon cable (pin #1) to the side of J2 (pin #1) marked with an arrow. Ensure that the Internal SCSI peripheral devices are connected with the color side of the cable to pin 1 of the device.
2. Connect the external SCSI peripheral devices installed in step 5 above, if any, to the SIDE-2930U connector J1 (The high density D-Sub 50 pin external connector).
3. Optional, to allow the user to know when a SCSI device is active. Connect the Hard Disk LED Cable of your PC to the LED CONN(connector J4).

CHAPTER 4

AdvanceWare Installation

The SIDE-2930U Installation/Boot Disk automatically tests this host adapter and the SCSI subsystem in each unique system. The SIDE-2930U is a state-of-the-art SCSI host adapter, using the latest innovations in RISC technology and subsystem design.

When to use the diskette

Once the host adapter is installed and configured on the motherboard, you should boot your machine with this diskette. The software will analyze the system. In normal use once the host adapter is fully installed, the user will not need to use this Installation diskette again. It is important to retain this Disk in the unlikely event that problems develop. Because this diskette is possibly important in installing new peripherials and for recovering from problems, we highly recommend you make a backup diskette. Keep it in a safe place.

The disk will walk through a diagnostic procedure, to insure that this is properly installed and configured.

How the diskette works

The program requires the computer to boot from the floppy drive. For the vast majority of systems all that is required for you to power on you PC with the Installation diskette in you floppy drive. If your system does not boot from the floppy drive you must set your existing system BIOS to boot from disk A. Run your BIOS Setup Program and temporarily change the boot disk to A. You can run your BIOS Setup Program generally at start-up. A screen note will tell you to press F1, Del or similar key to start the program. Remember to run the BIOS Setup program again after installing the SIDE-2930U to reset your original boot drive.

This diskette contains only the Installation utility. To make sure you do not accidentally overwrite it, the write-protect tab has been set permanently. Once you are finished using it, store it in a safe place.

Getting started

Step 1. Insert the Installation Diskette in Drive A. Reference to the diskettes that provide by this SIDE-2930U adapter.

Step 2. Turn on the PC power. Let the system boot. After the system does it self-test the installation program will load. The program will display a "welcome" screen.

Step 3. Turn ON the power to your external SCSI devices as the system boots.

Step 4. Press the Spacebar to continue installation. If you are using a monochrome monitor press F9 at the welcome screen to force a monochrome video mode. With a monochrome monitor attached to a color video board, the Program will attempt to use color in it display, some of which may be unreadable on a monochrome monitor.

Important notes about the System Installation program

Do not reboot or power down the system until the Installation program directs you to do so.

If an error message is displayed on the screen, please write it down. Review to Chapter 6: Troubleshooting. If you have difficulty contact your dealer to support for more information.

Subsystem diagnostics

Diagnostic program will perform a host adapter of diagnostics tests to ensure that the I/O subsystem is functioning correctly.

Step 5. Press the space bar to perform diagnostics.
This Diagnostic program will display a screen with a "thermometer" bar across the top. A host adapter of tests will be performed , with the thermometer bar showing approximately what percentage of each test has been completed. Some of the tests are quick, while others take a little time. The entire set of diagnostics should not take more than 5 minutes.
If any error messages appear, or this Diagnostic program reports that one or more tests have failed , write down as much information as possible and contact your dealer to support. When all tests are successful, press the space bar to continue.

Step 6. When all tests are successful select "Yes" and press Enter when program wants to Examine the SCSI Bus and List Devices. Let program perform its examination and show you a list of devices. This Diagnostic program will then examine the SCSI bus and the peripherals that are connected. The program will communicate with all devices that it finds and ensure that all systems are correctly communicating. You will see a screen that will define all the SCSI device that have been located. You will be asked to indicate if all devices are found. If the program reports all the devices that you have connected.

Step 7. Select "Yes" if all your connected devices appear on the list. If they don't , select "No" and the program will provide troubleshooting tips and ask you to reboot.
That's it! When the AdvanceWare Installation instructs you to, remove the AdvanceWare Installation Diskette from the disk drive and press the space bar. The PC will reboot.

Now where do you go ?

At this point, the AdvanSCSI and its attached SCSI devices are ready for use. If your PC is already installed with an operating system, boot up and go to Chapter 5 Software
Installation to the Section for your particular operating system. If not, go ahead and install the operating system. During OS installation,you should be able to use any attached SCSI fixed drives normally. To maximize the use of multi-tasking operating
systems, such as Novell, UNIX, Windows NT or OS/2, some of the default setting on
the SCSI configuration may be changed. Be sure to carefully read Appendix A: AdvanSCSI ROM BIOS Notes.

CHAPTER 5

Software Installation

The SIDE-2930U Host Adapter uses the AdvanSys Device Drivers for operation system.
These actions taken have installed your host adapter independent of the intended Operation System. The balance of the installation process will customize the I/O subsystem for your OS of choice.
There are many Operating Systems that can be used with this adapter. Some will require the installation of drivers for unique peripherals installed in your system. The more powerful OSs have all required drivers included, and all that is required is to add one or two software files to allow the OS to communicate with this adapter.
The complete driver / utility product to allow the full use of all potential SCSI peripherals.
For Novell NetWare, Windows NT, and UNIX easy to follow guides will allow you to install the appropriate software files.

Section 1	**DOS/Windows 3.x**	**ADVASPI.SYS**
Section 2	**Windows 95**	**ASC.ADD**
Section 3	**OS/2 Novell NetWare**	**ASC.DSK**
Section 4	**Novell NetWare**	**ASC.SYS**
Section 5	**Windows NT**	**ASC**
Section 6	**SCO UNIX and Interactive UNIX**	

Section 1 : DOS / Windows 3.x

The DOS / Windows environment has some limitations that should be reviewed at this point. The use of memory is limited by the operating system and you should configure your system sofrware to minimize its use of memory . The amount of system memory used gets higher based on the number of drivers required.

If all you will have attached to the SCSI bus is hard disk drives and you have DOS version 5.0 or higher, with or without Windows, you should not load any additional software. The host adapter BIOS will control your disk drives and will provide the maximum amount of free system memory.

> *Note: The performance of your system can be greatly improved by implementing the BIOS shadow function of many computers. The performance improvement may be as much as 50%. Check the system setup for " shadow ROM BIOS adapter memory. "*

If you have attached more than two hard disk drives, and you have DOS version less than 5.0, with or without Windows, you should load the ADVDISK software driver set. If you have a CD-ROM and have purchased one our bulk kits you should load the CD-ROM drivers or, if you have any other peripheral other than hard disk drives, you should load the Corel software.

Memory Managers

If your system has a large variety of different peripherals the use of a memory manager will help keep the impact, of multiple drives, to system memory to a minimum.

Prior to proceeding load your DOS or DOS/ Windows system software.

The Operating System should be installed on your bootable hard disk. Proceed with the software for Windows or DOS on the next few pages.

Quick CD AdvanSCSI Bulk

To install the CD-ROM drivers

Step 1. Insert the SIDE-2930U Diskette in drive A:

Step 2. Type:A:\ Instcd

AdvanSCSI CD-ROM Installer

This program is provided as a means to quickly install support for SCSI CDROM drives. It is intended for people who want to get their CDROM up and running without going through the entire Windows-

based installation of Advansys software and utilities.

This program creates an ADVSCSI directory on the C or D drive and copies the following to it:

1) Advansys ASPI Manager
2) Advansys CD-ROM driver and utility
3) Advansys Hard Drive / Removable Media Manager
4) Advansys SCSI Info Utility
5) Text Files describing the above software
6) This install program

In addition, the install program can modify the config.sys and autoexec.bat programs automatically to install the ASPI Manager and CD-ROM driver. The user has the option of skipping this step and editing their own autoexec.bat and config.sys. After initial configuration, you can reconfigure the CD-ROM driver by typing ADLINK from while in the ADVSCSI directory.

The ADVANCD CD-ROM driver and ADLINK utility replace the Corel software previously provided with Advansys adapters. The ADVANCD software provides support for the vast majority of SCSI CD-ROM devices, and uses far less memory than the Corel CD software.

This DOS based install is intended for systems not running Microsoft Windows. If you have Microsoft Windows, you should run the Windows Based setup also included with this package.

Instructions

Step 1. From the root directory on you AdvanSCSI drivers disk type INSTCD.

Step 2. You will be asked to choose the destination drive. This is your boot drive and is typically C:

Step 3. A directory called \ADVSCSI will be created on the chosen drive and the ADVANCD software will be copied to it.

Step 4. You will be asked if it is O.K. to modify your AUTOEXEC.BAT and CONFIG.SYS files. Unless you have a specific reason not to, answer yes. If you have previously installed the ADVANCD software, you should answer no.

Step 5. If you answered yes, backup copies of AUTOEXEC.BAT and CONFIG.SYS will be saved and the changes will be made.

Step 6. If you chose to have AUTOEXEC.BAT and CONFIG.SYS modified automatically, the install program will reboot your

system once to configure the CD-ROM software. After the configuration process, you will need to reboot again for the changes to take effect.

Step 7. If you wish to install Removable and Fixed disk support using ADVDISK, refer to ADVDISK.TXT for installation instructions.

Step 8. For more information on ADVASPI, refer to ADVASPI.TXT.

Step9. Information about ADVANCD and ADLINK is contained in ADVANCD.TXT.

Microsoft Windows

Getting Started

The AdvanSCSI requires MS-DOS/PC-DOS 4.0 or higher. The Corel software installation occurs under Windows. Performing the install under Windows provides all
DOS and Windows drivers.

Step 1. Start Windows
Step 2. Insert the CorelSCSI disk #1 in drive A:
Step 3. Select Run...from the file menu of the Program Manager.
Step 4. Enter A:\ SETUP
Step 5. Select Continue
Step 6. Select Full Install, Or select Custom Install.
Step 7. Select Continue to accept the default directory. Or enter the full directory path where you want CorelSCSI installed and select Continue.
Step8. If you are using the custom installation,select the drivers and utilities you want installed and then press Continue. The DOS utilities aren required to run the Windows utilities.
Step 9. Select the AdvanSCSI ASPI manager.
Step 10. Select the drivers you want loaded in high memory.
Step 11. Select Update to make the required changes to your CONFIG.SYS and AUTOEXEC.BAT files. If you choose Do Not Update, the CONFIG.SYS and AUTOEXEC.BAT files including the proposed changes are saved in CORELDRV as CONFIG.00n and AUTOEXEC.00n.The value of n starts at 0.
Step 12. If you are prompted to replace CORELCDX, select Yes.
Step 13. Select View for product information that wasn't available when the documentation was printed and then choose Continue to chose the product information.
Step 14. Select Reboot to restart you system using the modified CONFIG.SYS and AUTOEXEC.BAT files.

Section 2 : Windows 95

When a SIDE-2930U adapter is added to a functional Windows 95 system, Windows 95 will detect the presence of the adapter upon the first boot after installing the adapter. Windows 95 will display the "New Hardware Found" dialog. When Windows 95 is installed for the first time on a system that contains a SIDE-2930U adapter, this dialog is not displayed. The following checklist covers both possibilities.

Step by step installation checklist:

Step 1. If the "New Hardware Found" dialog is NOT displayed, skip to step 6.
Step 2. Click driver from disk provided by hardware manufacturer.
Step 3. Click OK.
Step 4. Insert the AdvanSys Universal Drivers Diskette in drive A:, enter A:\WIN95 then click OK, Windows will copy the AdvanSys Universal Windows 95 driver.
Step 5. Skip to step 16.

If the New Hardware Found dialog is NOT displayed:

Step 6. Go to the Device Manager by clicking My Computer/Control Panel/ System/ Device Manager.
Step 7. Double Click on Other devices.
Step 8. Click PCI SCSI Bus Controller, then select Properties.
Step 9. Click the Driver tab at the top.
Step 10. Click Change Driver.
Step 11. Select SCSI Controllers from near the bottom of the list, Click OK.
Step 12. Click Hard Disk.
Step 13. Insert the AdvanSys Universal Drivers Diskette in drive A:, enter A:\WIN95 then click OK.
Step 14. Select AdvanSys PCI SCSI Host Adapter Driver and Click OK.
Step 15. Click OK, Windows will copy the AdvanSys Universal Windows 95 driver.
Step 16. Click Yes to restart the computer.
Step 17. Go to the Device Manager by clicking My Computer/Control Panel/System/Device Manager.
Step 18. Click the AdvanSys PCI SCSI Host Adapter Driver icon, then select Properties.
Step 19. Verify that this device is working properly" is displayed in the Device status box.

Installation of the AdvanSys Universal Windows 95 driver is now complete.

Section 3 : OS/2

AdvanSys ASC.ADD 2.3.3 Device Driver Installation for OS/2 Warp (3.0). The AdvanSys 2.3 device driver package for OS/2 package includes the following files:

README.OS2	This file
ASC.ADD	AdvanSys 2.3.2 Universal SCSI Adapter Device Driver
PRASC.EXE	Prescence Check Program
PRASC.DDP	Prescence Check Definition File

Directions for installing the driver to a new system:

Step 1. Obtain the OS/2 Version 3.0 CD-ROM installation kit with the following items:

a. IBM OS/2 3.0 "Installation Diskette for CD-ROM"
b. IBM OS/2 3.0 "Diskette for CD-ROM (1)"
c. IBM OS/2 3.0 CD-ROM

Step 2. Make a back-up copy of the diskette "Diskette for CD-ROM (1)". This diskette must be modified to install the ASC driver.

Step 3. The file ASC.ADD must be copied to the diskette"Diskettefor CD-ROM (1)". Make space on the diskette by removing the driver files SONY31A.ADD and SBCD2.ADD drivers. These directions assume that you do not need these drivers. If you do then remove a driver that you do not need. Copy the file ASC.ADD file to the root direcory of the diskette.

Step 4. Use a text editor to add the line "BASEDEV=ASC.ADD" as the first line of the file config.sys on the "Diskette for CD-ROM (1)". Remove the two lines in the config.sys file containing the SONY31A.ADD and SBCD2.ADD drivers.

Step5. Insert the "Installation Diskette for CD-ROM" into drive A:, insert the install CD-ROM into the CD-ROM drive, and install OS/2 by following the IBM OS/2 installation instructions.

Step 6. After the OS/2 Installation has completed, install the driver from the OS/2 Desktop by following the "Directions for installing the driver to an exising system", Step B. Directions for installing the driver to an existing system:

A. From the OS/2 command line:

Step 1.Boot up the existing OS/2 system.
Step 2.Insert the AdvanSys driver diskette to drive A:.
Step 3.Copy the file ASC.ADD from the diskette OS2 directory to the directory C:\OS2. This assumes that C: is the root drive. Substitute the correct drive letter if your root drive is different.
Step 4.Use a text editor to add the line "BASEDEV=ASC.ADD" as the last line of the drive C: or root drive CONFIG.SYS file. Add any desired options to the line at this time.
Step 5. Reboot the system.

B. From the OS/2 desktop:

Step 1.Boot up the existing OS/2 system.
Step 2.Insert the AdvanSys driver diskette to drive A:.
Step 3.Select "System Setup" in the "OS/2 System" icon. Select "Device Driver Install" and follow the directions to install the driver. Specify the OS2 directory on the diskette as the "Source Directory".
Step 4.If you would like to add options to the ASC.ADD command line in the CONFIG.SYS file, use a text editor (tedit) from an OS/2 Window command line line to edit the CONFIG.SYS file. Find the BASEDEV=ASC.ADD line in the file and add any desired options.
Step 5. Reboot the system by selecting "Shutdown" from the "Launch Pad" icon.

AdvanSys 2.3 Universial SCSI Adapter Device Driver Options

/V Verbose
Display information during OS/2 system initialization.

/A:d Adapter Index "d" is a decimal number. This option is used to specify an adapter for options that follow like /I, /DM, or /SM.

/I Ignore Adapter

/[!]DM:target
or
/[!]DM:(target,lun),...
DASD Manager Support Indicate the unit(s) are supported by OS2DASD.DMD."target" and "lun" are decimal numbers that specify the devices to use. Must be preceded by a /A:d option. If the '/' is followed by a '!' the unit will not be controlled by OS2DASD.DMD.

/[!]SM:target
or
/[!]SM:(target,lun),...
SCSI Manager Support Indicate the unit(s) are supported by OS2SCSI.DMD. "target" and "lun" are decimal numbers that specify the devices to use. Must be preceded by a /A:d option. If the '/' is followed by a '!' the unit will not be controlled by OS2SCSI.DMD.

/L Enable scanning for LUN devices for all targets (disabled by default).

Asc Driver CONFIG.SYS Examples

DEVICE=ASC.ADD /V /I:110

Print adapter and device information during start-up. For each adapter found scan each target device on the adpater for LUN devices or embedded targets.

BASEDEV=ASC.ADD /A:0 /!SM:5 /!DM:5

Flag the AdvanSys Adapter 0, Target 5 device so that it is not controlled by the OS2SCSI.DMD and OS2DASD.DMD Device Manager Drivers.If OS2ASPI.DMD is loaded in your CONFIG.SYS it will take control of the device at AdvanSys Adapter 0, Target 5.

Troubleshooting and Recovery Suggestions

Problem 1:

OS/2 hangs during start-up while the OS/2 logo is being displayed.

Solution 1:

The system has probably encountered a problem with one of the CONFIG.SYS entries. Reboot the system following these instructions. After the boot manager menu (if the boot manager is installed) and while the string "OS2" is displayed to the right of a white box in the upper, left-hand corner, press ALT-F2. This will cause OS/2 to print CONFIG.SYS entries in the lower, left-hand corner of the screen as they are being executed. This may help determine what is causing OS/2 to hang.

To boot a system that hangs during start-up use the OS/2 Install Diskettes. The OS/2 Install CD-ROM is not needed. Boot the "Installation Diskette for CD-ROM" and insert the "Diskette for CD-ROM (1)" when prompted. Before the install procedure begins you will be given the option of exiting to the command line by pressing F3. Press F3 for this option. This will allow you to make changes

from the command line to your CONFIG.SYS file. The OS/2 editor "tedit" can be used to edit the CONFIG.SYS file from the command line.

Note that the location of the ASC.ADD line in the CONFIG.SYS file does not matter. It will work at the beginning or the end of the file.

Problem 2:

OS/2 panics while loading the ASC.ADD driver with a ASC PCI card is installed. OS/2 2.X is being used.
This problem does not occur with OS/2 3.0 (WARP).

Solution 2:

OS/2 2.X does not support PCI. You must obtain a patch for OS/2 2.X either from IBM or AdvanSys.

Problem 3:

When installing the ASC driver from the desktop the error message "A profile control file could not be found" is displayed and the installation fails.

Solution 3:

The "Source Directory" for the install must be set to the directory which contains the files PRASC.DDP, PRASC.EXE, and ASC.ADD.

Change the "Source Directory" to this directory. Usually this directory is: A:\OS2

Problem 4:

Where is the AdvanSys ASPI driver?

Solution 4:

The ASPI (Advanced SCSI Programming Interface) Driver for OS/2 is provides by IBM. The OS/2 ASPI driver (OS2ASPI.DMD) works any ADD (Adapter Device Driver) including ASC.ADD. Add the following line to your CONFIG.SYS file. Also refer to Problem 6 you may need to add options to your ASC.ADD BASEDEV line to ensure that OS2ASPI.DMD controls a particular device.

BASEDEV=OS2ASPI.DMD

Problem 5:

OS2ASPI.DMD does not seem to see a SCSI device I want it to control.

Solution 5:

Each ADD (Adapter Device Driver) target device can only be controlled/allocated by one DMD (Device Manager Driver). The OS2SCSI.DMD (SCSI pass-through driver), OS2DASD.DMD (Disk

Block Driver), and OS2CDROM.DMD (CD-ROM Block Driver) Device Managers control any devices that they find to be unallocated, of a particular type they may be looking for (e.g. OS2DASD.DMD only looks for disk type devices), and not flagged to not be controlled by them when they are loaded. The ADD options /SM and /DM can be used to specify which DMD should control a particular ADD target device. Refer to the section above entitled "AdvanSys 2.3 Universal SCSI Adapter Device Driver Options" for a description of the /SM and /DM options.

The OS2ASPI Device Manager works differently. By default it only allocates devices that it finds to be unallocated. Therefore any targets you want to be controlled by OS2ASPI.DMD should be flagged on the ASC.ADD BASEDEV line to indicate that they should not be controlled by OS2SCSI.DMD, OS2DASD.DMD, or OS2CDROM.DMD. (Note: there is no way to prevent OS2CDROM.DMD from controlling CD-ROM devices. If you want OS2ASPI.DMD to control a CD-ROM device don't include OS2CDROM.DMD in your CONFIG.SYS file.)

Finally if you have a device like a scanner attached to AdvanSys Adapter 0 at Target 5, try the following to make OS2ASPI.DMD control it. A/!DM:5 option shouldn't be necessary, because OS2DASD.DMD ignores non-disk type devices. Even the "/A:0 /!SM:5" options are only necessary if you include a BASEDEV= OS2SCSI.DMD line in your CONFIG.SYS file.

BASEDEV=ASC.ADD /V /A:0 /!SM:5

Problem 6:

The ASC.ADD driver does not load at boot time because of an error. OS/2 displays a message about there being an error with the driver. After this ASC.ADD displays a message about disabling the BIOS SCAM option. (OS/2 may have displayed this message too quickly for it to be read.)

Solution 6:

If your AdvanSys Card BIOS has the SCAM (SCSI Configured AutoMatic) option make sure that it is disabled. The OS/2 operating system does not have support for this feature. If the ASC.ADD driver detects that the option has been enabled, it will return an error. To correct this problem or check the setting, enter the AdvanSys BIOS by typing Ctl-A during the AdvanSys BIOS Device Scan at boot time. Select the "SCSI Configuration" option and then the "SCAM Device Support" option. If the "SCAM Device Support" option is enabled then disable it, save the change , and reboot the system.

Section 4 : Novell NetWare

The SIDE-2930U host adapter is designed to support both Novell NetWare 3.1x and 4.0 driver interface to the Netware.

ASC..DSK is the AdvanSys Universal NetWare are driver. It is designed to work with all AdvanSys host adapter cards (ISA, VL, EISA, and PCI) and all major versions of NetWare (3.11,3.12,4.x). ASC.DSK is a combination of disk driver and ASPI Manager.

The file should be loaded in the server STARTUP.NCF file. For a default installation,simply add this line:

Command - line options

There are several command-line options that can be used with the ASC.DSK driver. Most installations will not require any of these, but there are circumstances where one or more may be necessary.Command-line options are specified as part of the LOAD command. For example:

LOAD ASC MAXQ=16 VERBOSE=Y

The various command-line options are described below.

PORT=n

This specifies that the ASC.DSK driver should only control the AdvanSys host adapter located at I/O port * This is normally not needed, as ASC.DSK will locate and initialize all installed host adapters. This option can be specified as many times as needed.

ABOVE16={ Y / N}

See the note below on using the ASC.DSK driver on a server with greater than 16 megabytes of memory.

IGNORE=n

This is the opposite of the PORT option. All host adapters will be initialized execpt for the adapter at I/O port *This option can be specified as many times as needed.

EXCLUDE=h/t { h/t..}

By default, ASD.DSK will control all fixed, removable, CD-ROM, WORM, and optical devices. If you will be using an ASPI module to control any of these devices (such as Corel RAID driver) you need to exclude the deive(s) that will be under the modules control. Specify the host (* and target ID *) on the command-line with the EXCLUDE option. A comma can be used to specify more that one device. No spaces should be present between commas.

EXCLUDEALL

This is a short way of excluding all devices from ASC.DSK control.

CHECKWP={ Y/N}

ASC.DSK will check the write-protect flag on all devices and report them as read-only to NetWare if set. Some devices improperly report the write-protect flag, and are therefore set as read-only when they are read-write. Set this option to *N *to disable write-protect checking.

LUN={Y/N}

Logical unit (LUN) support is enabled by default. Set to *N* to disable.

VERBOSE={Y/N}

When set to *Y* host adapter configuration information is displayed at initialization.

MAXQ=n

A certain degree of optimization can be performed by adjusting this value. This determines the maximum total number of requests that will be issued to any one device.

By default, this value is set at 32. Increasing or decreasing this value can affect throughput in many ways. However, most SCSI II devices will not accept more than 4 or 8 commands at one time in any case.

ORDERED={Y/N}

When using command (tagged) queuing, the ASC.DSK driver will use simple tags for all requests. Some devices do not work well with simple tags, and may cause timeout problems. Set this option to *Y* to use ordered tags instead.

IMPORTANT:

Using the ASD.DSK driver with the AdvanSys ISA adapter on a server with greater than 16 megabytes present.

If you will be using ASC.DSK driver with an AdvanSys ISA host adapter on a file server with greater than 16 megabytes of memory, it is vitally impormant to follow these instructions.

The server can report the total amount of memory by typing the MEMORY command at the file server prompt. If the file server reports memory less than what is actually installed, follow the instructions in B, below. Otherwise, follow A. In either case, whether ASC.DSK is loaded in the STARTUP.NCF or AUTOEXEC.NCF, add the *ABOVE16=Y* option to it command-line, i.e:

LOAD ASC ABOVE16=Y

A. In your STARTUP.NCF file, include the following commands (if they are not present) :

SET AUTO REGISTER MEMORY ABOVE 16 MEGABYTES = ON

SET RESERVED BUFFERS BELOW 16 MEG = n

The number of buffers to reserve (*n* is equal to (4x number of ISA host adapters) + (4 x number of attached SCSI devices). So, if you had 5 SCSI devices on 2 ISA hosts, you would allocate ((4x2) +(4x5)) = 28. If you already declared this statement for another driver or NLM, add this value to the one already specified.

B. In your STARTUP.NCF file, include the following commands (if they are not pressent):

SET AUTO REGISTER MEMORY ABOVE 16 MEGABYTES = OFF

SET RESERVED BUFFERS BELOW 16 MEG = n

(Follow the instructions in A for deciding the number of buffers to allocate).

In your AUTOEXEC.NCF file, add this command : REGISTER MEMORY 1000000n Where *n* is equal to the amount of memory above 16 megabytes available (in hexadecimal). For example, use the command that corresponds to the amount of memory istalled:

24MB	REGISTER MEMORY 1000000 800000
32MB	REGISTER MEMORY 1000000 1000000
64MB	REGISTER MEMORY 1000000 3000000

Returning to DOS after exiting the server, If the server is booting from a SCSI drive controlled by the AdvanSys host adapter, the server may hang once exiting back to the DOS prompt. In no case is file server data integrity being compromised. All information has been written to the server before this occurs.

As of this time, the only solution is to load the AdvanSys DOS ASPI Manager in the server CONFIG.SYS file before loading the server software, As long as the ASPI Manager is the same version as the ASC NetWare are driver, there should be no problem exiting back to DOS.

Section 5 : Windows NT

For the Windows NT operating system to communicate with the AdvanSCSI host adapter special files need to added to the system files for your computer. The AdvanceWare Drivers #1 diskette has the files required . Please follow one of the procedures below to properly configure your system.

The AdvanSys Universal Windows NT driver supports SIDE-2930U PCI Host Adapter under both NT 3.1 and NT3.5.

There are two forms of installing drivers into Windows NT: Initial Load (also known as text setup), and Add-on loading. The following describes the locations of the driver files and scripts to support both forms. We assume for simplicity that the user is installing the driver from a floppy disk in drive A:

Files in A: (root):

DISK1

TXTSETUP.OEM

Files in A:\Windows. NT:

OEMSETUP.INF

ASC.SYS

INSTALLING WINDOWS NT FOR THE FIRST TIME:

If you are installing Windows NT for the firt time, and wish to include the AdvanSys Universal NT driver, follow this procedure:

Step 1.Insert Windows NT setup diskette and follow standard Windows NT installation procedures (see Microsoft documentation)

Step 2. When prompted to choose between "Standard " and "Custom" setup, YOU MUST SELECT "CUSTOM "!!!

Step 3. When prompted, insert the drivers diskette with files arranged as desceibed above and select the AdvanSys Universal NT driver.

Step 3. The NT Setup program will load the Universal Driver ASC.SYS and proceed to install NT from CD-ROM (if desired).

ADDING THE UNIVERSAL DRIVER TO A RUNNING NT SYSTEM:

If you are already running Windows NT, and wish to add the AdvanSys Universal Driver to your system , follow this procedure:

Step 1. Run "Windows NT Setup" from the Windows NT "MAIN" program group.
Step 2.Click "Options" from pull-down menus.
Step 3. Choose "Add / Remove SCSI Adapters".
Step 4.Click "Add".
Step 5. Select "Other" from "Seclect SCSI Adapter Option" menu.
Step 6. Insert the AdvanceWare Drivers diskette with files arranged as described above into drive A: and type A:.NT then click "OK" (Or drive B: as appropriate .)
Step 7. Exit Windows NT Setup and reboot your system for the driver to take affect.

NOTE : Before installing the AdvanSys Universal Driver for Windows NT, you should install and verify correct operation of your SIDE-2930U Host Bus Adapter using MS-DOS and the diagnostic boot diskette that comes with your adapter.

Section 6 : SCO UNIX & Interactive UNIX

Instructions for creating the ASC Universal Driver Diskette from DOS

The file btld.exe is a self-extracting archive which contains an image of an SCO Unix EAFS file system. The image can be copied to a 3.5" diskette to make an ASC Universal Driver HPDD diskette. This file is on the release diskette and available on the AdvanSys BBS and FTP systems. See below for information on accessing the AdvanSys BBS and FTP systems.

Step 1.Copy the file btld.exe to a DOS system.

Step 2.Run the command btld.exe. The following two files will be created:

btld.dat

unixfer.exe

Step 3.Insert a blank formatted diskette in the 3.5" floppy disk drive and create the diskette with the following command.

unixfer btld.dat a:

Instructions for creating the ASC Universal Driver Diskette in SCO Unix

The file btld.Z is a compressed image of an SCO Unix EAFS file system. The image can be copied to a 3.5" diskette to make an ASC Universal Driver diskette. This file is on the release diskette. It is only available on the AdvanSys BBS and FTP systems. See below for information on accessing the AdvanSys BBS and FTP systems.

Step 1.Copy the file btld.Z to an SCO Unix system.

Step 2.Uncompress the file btld.Z with the following command in the same directory where the file is located.

```
$ uncompress btld.Z
```

Step 3.Insert a blank diskette in the 3.5" floppy disk drive and use "dd" to create the diskette with the following command.

```
$ dd if=btld of=/dev/rfd0 bs=64k
```

Installing the ASC Driver during SCO Unix Installation

Step 1. Set-up your devices to have the following SCSI Target IDs: Hard Disk: 0, CD-ROM: 5, and Tape Drive: 2.

Step 2. Refer to "BTLD Installation" in the SCO Unix Installation Guide.

Step 3. Type "link" at the boot prompt.

Step 4. The package to link to is "asc".

Step 5. Insert the AdvanSys BTLD diskette into the floppy drive when the system requests it. Refer to the instructions above on how to create the AdvanSys BTLD diskette if you don't already have one.

Step 6. At the end of the installation, you may be asked: "Do you want to replace 'auto' with 'asc' Y or N." Answer yes to the question.

Installing the ASC Driver after SCO Unix has already been Installed

Step 1. Run the command "installpkg" from the SCO Unix command line.

Step 2. Insert the AdvanSys BTLD diskette into the floppy drive. Refer to the instructions above on how to create the AdvanSys BTLD diskette if you don't already have one.

Step 3. After installation, type the following commands to rebuild a new kernel that contains the asc driver. For more information refer to the SCO documentation regarding compiling the kernel.

```
cd /etc/conf/cf.d
/link_unix
```

CHAPTER 6

Troubleshooting

Troubleshooting DOS

SIDE-2930U ROM BIOS does not recognize attached device(s)

- ☑ Be sure all devices are connected properly according to manufacturer
- ☑ documentation. When using an internal SCSI connector, be sure that the color edge of the cable is connected to pin 1 of the device.
- ☑ Check all devices for proper power and, if using an external power supply, theytured on.
- ☑ Check the SCSI ID on each device.Each SCSI target should have a unique SCSI ID between 0 and 7. By default, the SIDE-2930U card uses SCSI ID 7. You can use the AdvanceWare Setup (by pressing Ctrl+A when the SIDE-2930U BIOS is initializing) to verify the SCSI ID of AdvanSCSI SCSI ID conflict. On an 8 bit SCSI bus, there are eight possible SCSI ID.No two devices can have the same SCSI ID. ID 7 is generally used for host adapters, while disk drives tend to use ID 0 . Peripherals *SCSI ID* are generally configured with DIP switches or junpers. If the host adapter and peripheral have the same ID, the peripheral will generally look like it appears at every SCSI ID. If two peripheral are at the same ID, one may be visible to the system or they may "lock up" the bus and neither will be visible. To detect/overcome this problem, hook up one peripheral at a time and reboot the system. The SCSI ID is shown when the BIOS scans the SCSI bus.You can also check the user manual for the peripherals is question in order to determine the SCSI ID.Sometimes the SCSI ID information is printed on a label attached to the peripheral.
- ☑ Check the SCSI bus for proper termination. The SIDE-2930U will automatically select the correct termination for the host adapter. You must verify that the belance of the bus is correct. If only one SIDE-2930U connector is used, the device at the other end of the SCSI bus should be terminated according to manufacturer documentation. No other device should be terminated . If both SIDE-2930U connectors ard used, the devices at opposite ends of the SCSI bus should be terminated. No other device should be termined.
- ☑ Over/ User Terminated SCSI Bus. A SCSI bus should have termination enabled at each physical end of the SCSI cable. The bus may function with termination at one end , or in the middle . It cannot function with

no termination or termination on three of more devices. An incorrectly terminated SCSI bus may not function at all , or may start up then hang. There are two basic configurations with an Advansys SCSI card:

- ☑ cable connected to Advansys card, external or internal. In this case,
- ☑ the Advansys board will automatically active it own termination.
- ☑ In this case, only the peripheral at the other end of the SCIS bus
- ☑ should be terminated.
- ☑ Both external and internal cables connected to SIDE-2930U card. In this case, the Advansys card automatically deactivates it termination. The peripheral at the opposite ends of both cables should then have termination installed.
- ☑ When you ard not sure about ternination, better to err on the side of less termination. Extra terminators can damage the hardware, in some cases.
- ☑ Some older SCSI devices take longer to warm up once power is turned on. If the ROM BIOS does not list the device, try resetting the machine (without cycling power) and see if it is recognize the second time.
- ☑ SIDE-2930U ROM BIOS does not control attached hard drive(s)
- ☑ If the hard drive is not listed when the AdvanSCSI BIOS initializes, check all the items outlined above.
- ☑ During initialization, the AdvanSCSI BIOS will display a *Drive 80h* or "Drive 81h" (an so on) next to the drive identification if the drive is under it control
- ☑ If the hard drive is not listed, then reset the computer and press Ctrl+A during initialization while the SIDE-2930U BIOS message is displayed to get to the AdvanceWare Setup.

  NOTE: The SIDE-2930U BIOS will only control SCSI hard drives. It will not control CD-ROMs, magneto-optical drives, or WORM drives. You willneed to install a device driver for your operating system for these devices to be recognized.
- ☑ Frist check BIOS Target Control.This will list each SCSI ID with a checkbox nex to it. The checked items are the SCSI Ids that the BIOS will attempt to control.If the SCSI ID matching the hard drive is not checked, highlight that SCSI ID with the cursor and press spacebar.
- ☑ Then check Multiple Drive Support. Versions of DOS prior to 5.0 would only recognize two BIOS-controled hard drives. If you are using such a version of DOS, set this to disabled. Any hard drives not controlled by the SIDE-2930U BIOS will have to be controlled by a DOS disk driver. See the section on DOS for more information.

  NOTE:If you are using any operating system other than DOS,set this item to enabled.

- ☑ Finally, if the drive uses removable media, check Removable Drive Support . The SIDE-2930U BIOS (by default) will not control removable drives. If you set this item to enabled, removable drives will be controlled by the BIOS.

  NOTE: Do not remove the media from a BIOS-controlled drive while the cmputer is running. This can result in loss or corruotion of data.

  If you wish to change media while the system is running,use a SCSIdisk driver suitable for your operating system.

  AdvanSCSI ROM BIOS does not appear when the system boots:
- ☑ If the AdvanSCSI BIOS does not appear during the boot process, it could be hidden *by another adapter card* (such as a network card, another SCSI card,etc) or the BIOS may be disabled.
- ☑ In either case, boot from the AdvanceWare Installation Diskette and follow all instructions. By the end of the program, the SIDE-2930U BIOS will be elocated *to avoid being hidden by another card* (if necessary)and re-enabled (if disabled).

Using more than one SIDE-2930U on the same system:

- ☑ Whether you install all SIDE-2930U cards at the same time or additional in a future date, they should all be installed one at a time.You should boot from the AdvanceWare are Installation Diskette for each card installation. By using this method, the boards will be smoothly integrated into the system and configured to that they will not conflict with each other.
- ☑ Because of the nature of the SIDE-2930U BIOS, it needs to be enabled only on the card with the lowest I./O port address. If (using the AdvanceWare Setup) you try to enable the BIOS on more than one board, or change port addresses, problems may result. If this has occurred reboot your system with the AdvanceWare Installation/Boot diskette.
- ☑ Be sure that each card is using it own hardware IRQ and port address. These will cause conflicts and improper operation of the cards. The AdvanceWare Installation/Boot diskette will ensure that each host adapter has a unique IRQ.
- ☑ If you do run into problems at a future date, be sure to use the AdvanceWare Installation Diskette to troubleshoot the problem. In fact, no roblem may be detected, but the cards will be re-configured to properly work with each other.
- ☑ Configuration items not pertaining to making the cards work together will not be modified.
- ☑ Also, do not load the Corel device drivers more than once. The device

drivers will locate all attached cards and control them all.

- ☑ The SIDE-2930U cards will not work on the same SCSI bus. Do not attempt to connect the cards together using a SCSI cable.

Using an AdvanSCSI with a different host adapter

- ☑ The SIDE-2930U card can co-exist with other SCSI host adapter, but some precautions need to be taken.
- ☑ Although the AdvanceWare Installation Diskette can detect most conflicts and resolve them automatically, some are undetectable until after an operating system is loaded.
- ☑ When installing two different boards, check that the following items do not conflict in any way:I/O port address, hardware IRQ,and ROM BIOS address. You can change these settings using the AdvanceWare Setup. See "system conflicts" below.
- ☑ The SIDE-2930U cards should not share the SCSI bus with another SCSI host adapter.ASPI Manager does not recognize attached device(s).

APPENDIX A

SIDE-2930U ROM BIOS NOTES

The AdvanSCSI ROM BIOS is an on-board system BIOS extension that allows attached SCSI fixed drives appear as if they were natively attached to the motherboard.

This allows for the SCSI fixed drives to be available via interrupt 13h calls, and therefore available to an operating system without loading an ASPI Manager and /or disk driver.

IMPORTANT: Some operating systems, particularly multitasking ones like Novell, UNIX, Windows NT and OS/2, require that a disk driver be loaded to more effectively use the attached fixed disks. The AdvanSCSI ROM BIOS will be ignored by the operating system. MS-DOS/PC-DOS and Windows do not require using a fixed disk driver.

Getting Started

By default, the SIDE-2930U ROM BIOS is available and enabled. It will automatically initialize itself after the system Power-On Self-Test (POST). If you want tochange it configuration, see SIDE-2930U ROM BIOS Setup

SIDE-2930U ROM BIOS vs. Fixed Disk Driver

There are many different reasons to use either the SIDE-2930U ROM BIOS, which reside on the host adapter boards itself, or a fixed disk driver. The most important points are listed below.

Step 1. ROM BIOS make fixed SCSI drives appear to be native hardware. That means the system will access these drives directly and allow you to boot from them. ROM BOS have another advantage;they do not consume precious system RAM.

Step 2. A fixed disk driver, if needed , is a small program loaded at start-up, consumes RAM and requires an ASPI Manager, another small program, to be loaded. In some situations, particularly when using MS-DOS or PC-DOS, RAM memory is quite valuable.The AdvanSCSI ASPI Manager requires 30KB of RAM, and the Corel Fixed Disk Driver requires 4KB of RAM. (Both drivers can be loaded into high memory, however.

Step 3. Some operating systems require a fixed disk driver. As noted above, multitasking operating systems will usually require that a fixed disk driver be loaded

Step 4.Older versions of MS-DOS may require a fixed disk driver due to disk drive limitations.If you are using MS-DOS /PC-DOS 4.x or earlier, DOS will only recognize two physical fixed disks. To use more than two fixed drives, you will need to load the AdvanSCSI ASPI Manager and the Corel Fixed Disk Driver. MS-DOS/PC-DOS, Microsoft Windows and the AdvanSCSI ROM BIOS
If you are using MS-DOS/PC-DOS 5.0 or higher, and optionally Microsoft Windows, you will probably just want to use the AdvanSCSI ROM BIOS with its default setting. The ROM BIOS will take control of all the SCSI fixed disks.
If you plan on using the enclosed tape backup, CD-ROM, etc. software, you will need to load the AdvanSCSI ASPI Manager.

AdvanSCSI Setup Notes

Although the System Installation Diskette should configure the AdvanSCSI to properly work on your system, there may be the need to change certain options with the ROM BIOS for the SIDE-2930U host adapter. If there is ever the need to change the configuration of the AdvanSCSI ROM BIOS, the on-board setup is available.

Getting Started

When the PC is first starting, watch the video screen. After the Power-On Selt-Test(POST), a brief message will appear on the screen, something like: *AdvanSCSI ROM BIOS, press Ctrl+ A to configure* At this time, press { Ctrl} +{A} to stop the boot process and run the setup.
A small box will appear on the screen. If you ard using a Monochrome monitor, press F9 to force a monochrome video mode. Otherwise press the spacebar.

Main Menu

There are a number of different options available at the Setup main menu. In general, these are the only keystorkes you will need to use:

- ☑ (Up arrow)/(Down arrow) : Move the menu selection cursor between items.
- ☑ (Spacebar) : Select a menu item
- ☑ (Esc):Return to the previous menu.

Some of the menu are *picklists* that is, you are being asked to make one or more selections that affect a configuration option. In this case, the keystorkes are:

- ☑ (Up arrow)/(Down arrow): Move the menu selection cursor between items.
- ☑ (Space): Toggle the currently highlighted selection.
- ☑ (Esc): Return to the previous view.

The following is a quick explanation of each item. More detailed explanation for some of these items are presented afterwards.

ABP940 Configuration: Selecting this item opens a sub-menu that controls the configuration of the host adapter and ROM BIOS.

Note : Many Item In This Sun-Menu Can Disable The Host Adapter Operation. Extreme Care Must Be Exercised With This Sub-Menu

SCSI Configuration: Selecting this item opens a sub-menu that controls the configuration of the SCSI bus and the devices on the SCSI bus.

Restore previous settings: If you have made a number of changes, and wish to revert back to the setting when you first started, select this item. You will be asked if you really want to do this before losing changes.

Restore factory defaults: This will reset all configuration items back to the original settings present when the board was shipped from the factory. You will be asked if you really want to do this before losing your current configuration.

Discard changes and exit: This will discard any changes made and eset the computer.

You will be asked if you really want to do this before rebooting.

Write changes and exit: This will write all changes made to the host adapter EEPROM and reset the computer. You will be asked if you really want to do this before saving the changes and rebooting.

PCI Burst Mode

This function turns off the burst mode function of PCI. The best performannce will be obtained with burst mode on , however, some PCI motherboards have not implimented burst mode correctly and problems may result in some systems.

BIOS Target Control

The AdvanSCSI ROM BIOS will , by default, attempt to control all fixed

disks attached to it. If there are particular drives that you do not want it to control, you can toggle the drive SCSI ID from this list. If you exclude a particular fixed disk, you will need to load a fixed disk driver for the operating system to see the device. Software Installation to the Section for the operating system(s) you may be using.

NOTE: You do not need to use this exclude CD-ROM, WORM, or magneto-optical drives. The ROM BIOS will ignore these devices automatically

Extended Translation

NOTE: This Section applies only to DOS/Windows systems. For all other operating systems leave this setting in the default setting. is item only ffects how the AdvanSCSI ROM BIOS works with fixed drives of total capacity greater than one gigabyte.
Due to inherent limitations in the PC system ROM BIOS, it cannot support drives greater than one gigabyte. The AdvanSCSI ROM BIOS use an extended translation scheme to let you work with drives of up to 8 gigbytes. However, if the drive was previously partitioned for use under the normal translation (true, if used with a SCSI adapter that did not support extended translation), the ROM BIOS do not enable this feature, with out repartioning the drive.
If using older partitioned drives, disable extended tanslation. If not, or you ard willing repartition the drive, losing all data previously existing on it, enable extended tanslation. Again, in all cases, this only makes a difference with drives greater than one gigabyte.

Multiple Drive Support:

On versions of DOS prior to 5.0, DOS could only recognize 2 Int 13h (BIOS) controlled drives. Other drives have to be controlled by a device driver. If you are using a version of DOS prior to 5.0, disable multiple drive support . For all other operating systems leave this function enabled, the default condition.

SCSI Configuration

Start Unit Command:

Some SCSI drvices specifically require that a Start Unit command be sent to them before they can accept SCSI read/write command. This gives them a chance to warm up and start their motor.(This is usually only required with older SCSI devices.)

SCSI Disconnection
SCSI targets can optionally release control of the SCSI bus while they perform an assigned task. This frees the bus ,and lets other targets become available. Some targets, particularly older ones, do not support disconnection. If this is the case, toggle the appropriate ID off.

Command Queuing
Most SCSI targets can accept more than one command at one time. Some SCSI drvices may not support that. If this is the case, toggle the appropriate ID off. Some vendors will refer to command queueing as *tag queuing*
SCSI Parity
The AdvanSCSI uses parity by default to insure data integrity for all transfers. This has next to no affect on performance.

Synchronous Negotiation
Some targets, particularly older ones, cannot negotiate for synchronous data transfer. If a particular target does not seem to work after the AdvanSCSI driver initializes the SCSI bus, try turning negotiation off. Synchronous data transfer (SDTR) allows for higher data transfer speeds to occur on a SCSI bus. The host adapter can usually negotiate a proper speed to work with all devices. If a particular device has a known SDTR speed, set it here.
Note: If the target device does not support Synchronous transfer, select *Disabled* from the menu

Host Queue Size
Specify the total size of the SCSI queue. The AdvanSCSI host adapter are shipped with a default level of 224. The performance of your system may be improved by increasing the queue size. The maximu queue size is 240.

Device Queue Size
Specify the size of the SCSI queue for each device. The AdvanSCSI host adapters are shipped with a default level of 64. The performance of your system may be improved by increasing the queue size. Each SCSI device has an optimum queue size that can be found in the manufactures documentation for the device or by experimentation in your system. The maximum value allowed in the device queue size is 255.

APPENDIX B

ASPI MANAGER(ASPIMGR.SYS)

The AdvanSCSI ASPI Manager is the gateway to DOS applications using SCSI devices attached to the host adapter. The ASPI Manager allows for fixed disk drivers, CD-ROM playing software, tape backup utilities, and image scanning software to be able to access and utilize any attached SCSI devices. If the drivers are 100% ASPI compliant, there should be no problem using them.
The ASPI Manager is a device driver that must be loaded in the system Config.sys file.
It must be loaded prior to any ASPI-related sofrware ,including disk drivers.
To load the ASPI Manager, add this line to your Config.sys.

DEVICE = ADVASPI.SYS

The ASPI Manager can be loaded into hiht memory. An expanded memory manager must be loaded prior to loading ADVAASPI.SYS. Refer to your DOS or memory manager documentation for more details.
Command-line options can be added on the same line, separated by forward slashes.
For example:

DEVICE=ADVASPI.SYS/P/V

ADVASPI.SYS can also be loaded into high memory, if the appropriate memory manager has been installed prior to loading ADVASPI.
Command-line options
There are several command-line options that can be used with ADVASPI.SYS. Most installations will not require any of these, but there are circumstances where one or moremay be necessary.

/L

By default, logical units (LUNs) are not supported by ADVASPI.SYS. To enable LUN support, specify this option on the command-line.

/P

ADVASPI will pause and wait for the user to press a key before continuing once loaded.

/V

A verbose display will be printed during initialization, showing adapter I/O ports,

IRQs,

NOTE: Because the ASPI Manager is loaded from DOS, it is impossible to boot from a SCSI drive without using the AdvanSCSI ROM BIOS . When the ASPI Manager loads, you will see a header indicating copyright , etc. The ASPI Manager will scan the SCSI bus for attached devices, and list them as it finds them. If everything is all correct, the ASPI Manager will exit. If there is a problem, either a warning or an error message will be listed.

Using an AdvanSCSI with a different host adapter

Place the line in Config.sys loading the AdvanSCSI ASPI Manager after the line that loads the other adapter. The AdcanSCSI host adapter is other ASPI Manager aware. Other adapters may not be able to function without their ASPI Manager listed first.

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